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Shining a Light on Shadow Money

John Crawford

UC Hastings College of the Law, crawforj@uchastings.edu

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BOOK REVIEW

Shining a Light on Shadow Money

*John Crawford**

THE MONEY PROBLEM: RETHINKING FINANCIAL REGULATION
Morgan Ricks. University of Chicago Press, 2014.

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INTRODUCTION

In his superb new book, *The Money Problem: Rethinking Financial Regulation*,¹ Morgan Ricks meticulously and persuasively argues that financial stability and money creation are two sides of the same coin. Most money is held not as physical currency but rather as a claim on a financial institution. The bank deposit is the classic (but not the only) example of this. Concern about the risk of delay or loss in accessing money can lead to an en masse withdrawal, or bank run, which, when it spreads to many financial institutions, constitutes a

* Associate Professor of Law, University of California, Hastings College of the Law. I am grateful to Abe Cable and Reuel Schiller for helpful comments on drafts of this review.

1. MORGAN RICKS, *THE MONEY PROBLEM: RETHINKING FINANCIAL REGULATION* (2016).

panic. Understanding this relationship yields an immensely important policy payoff. By controlling and guaranteeing what counts as money, the government can solve the problem of financial panics, with all their untoward consequences. Achieving this would not be a utopian project: a few relatively simple tweaks to our current system could deliver financial stability more effectively than the tens of thousands of pages of rule releases spawned by the Dodd-Frank Act,² and at vastly lower administrative cost.

While it is hard to overstate how chock-full of subtle and surprising arguments the book is, I will limit myself in this Review to four objectives. First, I will describe the theoretical framework that informs Ricks's analysis—a framework that should be familiar to monetary economists, but that receives perhaps its first detailed exposition in this book.³ Second, I will clarify what Ricks means by “money” and by “financial stability,” and offer a reflection inspired by the first and a critique based on the second. Third, I will describe how Ricks's model of banks and bank panics helps establish the superiority of (i) a system of insurance for deposits and deposit equivalents combined with less onerous risk constraints on bank activities over (ii) a system of more onerous risk constraints without insurance. Finally, I will offer a few thoughts on what I view as the most essential take-away from the book: the importance and feasibility of stamping out shadow banking.

I. MONETARY MECHANICS AND STABILITY

Ricks's central insight is that a stable financial system should result from the same fundamental design choices that yield an optimal framework for conducting monetary policy. At the heart of the book lies a piquant thought experiment about how the government might best go about altering the supply of money in the economy.⁴ (It is assumed—

2. Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act), Pub. L. No. 111-203 (2010). As of July 2015, there were “22,296 pages of Dodd-Frank-related rule releases published in the Federal Register.” *Five Years of Dodd-Frank*, DAVIS POLK, <http://www.volckerrule.com/infographic/july2015infographic.html> [https://perma.cc/RH55-LLZZ] (last visited Apr. 17, 2016). At the time, approximately twelve percent of mandated rules had not yet been proposed, and a further seventeen percent had been proposed but not finalized. See DAVIS POLK, DODD-FRANK PROGRESS REPORT (July 16, 2015), http://www.davispolk.com/sites/default/files/2015-07-16_Dodd-Frank_Progress_Report_Five-Year_Anniversary.pdf [https://perma.cc/Y5FJ-DHL8].

3. After describing the framework, Ricks states, “Some readers won’t need any convincing on this score, but it is important to lay out the case explicitly and from first principles. One will search the literature in vain for a clear exposition of these matters.” RICKS, *supra* note 1, at 154–55.

4. *Id.* at 145–60.

correctly—that a flexible money supply is good.)⁵ One approach might be for the government to “spend” new money into circulation, by (for example) paying government employees, buying new Navy ships, or making social security payments.⁶ These are important things for the government to do but a clumsy mechanism on their own for calibrating the money supply. There is no reason to think that the “right” amount of money for the economy as a whole should track optimal fiscal or social transfer policy.

Another possible approach would be simply to give people money, independent of any social welfare program. For example, the government could mail everyone a check or drop bundles of bills from a helicopter.⁷ Alas, it would be hard to find a way to award lump sums in a manner that would not undermine incentives to work or save.⁸ Such an approach would also be useless for *contracting* the money supply when inflation threatens.

A third possibility would involve the government buying assets when it wanted to inject money into the economy and selling them when it wanted to drain money from the economy. Rather than paying someone (with newly created money!) in return for the provision of a current good or service, or gratuitously, the government would pay them in exchange for investment assets. Because these assets would be divorced from the government’s fiscal operations,⁹ fiscal and monetary policies could be pursued independently of each other, while the perverse incentives involved in gratuitous approaches would be

5. This is a basic tenet of macroeconomic theory and monetary policy. When the economy is in a funk, the government should endeavor to increase the money supply; if the economy is “overheating,” threatening inflation, the government should rein in the money supply. For an intuitive account of the economic logic behind this, see Paul Krugman, *Babysitting the Economy*, SLATE (Aug. 14, 1998), http://www.slate.com/articles/business/the_dismal_science/1998/08/babysitting_the_economy.single.html [https://perma.cc/Z83U-WSC8].

6. RICKS, *supra* note 1, at 149.

7. *Id.* at 150. The image of a helicopter drop is drawn from MILTON FRIEDMAN, *THE OPTIMUM QUANTITY OF MONEY* 4 (1969). I should note that Ricks runs his experiment under the assumption that all money is electronic—though adding physical currency as a conceptual or practical matter is “trivial.” RICKS, *supra* note 1, at 224. Ricks makes the assumption for several very good reasons; see, for example, the concept of the “money split,” *infra* note 8.

8. This incentive problem could be avoided, Ricks notes, if the government awarded all citizens some number of pennies for each dollar in their money account—which it could do fairly easily if all money were electronic. This would constitute a sort of “money split” strategy, analogous to a stock split. As Ricks explains, however, such an approach would be self-defeating: the point of expanding the money supply is to stimulate the economy, but the expectation of a money split during a period of weak growth will lead people to hoard money, which is contractionary. RICKS, *supra* note 1, at 150.

9. As we will see shortly, if the fiscal arm of the government runs a deficit, the monetary authority can buy investment assets from *it*—but the key point here is that buying investment assets entails no necessary connection between the government’s fiscal and monetary functions.

avoided. This, then, seems the most promising approach to altering the money supply.

But what *type* of investment assets should the government buy? Debt claims, such as bonds, have an advantage over both stocks and nonfinancial assets such as real estate: their value tends to be significantly less volatile. To the degree the government turns a profit from its monetary operations—income termed *seigniorage*—smooth profits are, *ceteris paribus*, better than volatile profits, as volatility “complicate[s] the government’s fiscal management.”¹⁰ Thus, the purchase and sale of “safe” credit assets offers advantages over other methods of altering the money supply.

So far, the thought experiment has led us to the precise approach central banks in developed economies use when they engage in monetary operations, with one important difference: Ricks has been assuming that there are no private banks to amplify the central bank’s monetary operations.¹¹ If the central bank *were* to conduct monetary operations without a private banking system, what sorts of credit assets should it buy? Because of the point about the profit smoothing, we would probably want it to buy assets with low credit risk and deep, liquid markets. If the fiscal arm of the government *borrowed* money, it could issue bonds. These bonds—in the United States, “Treasuries”—would be a good candidate for the type of safe and liquid asset we want the central bank to buy. But are there likely to be *enough* bonds? If there are not—and there are good reasons to think we should not rely on there being enough in the world we live in¹²—then we either wind up again suboptimally entangling fiscal with monetary policy, or we must look for *other* appropriate assets for the central bank to buy.

Once we move beyond government bonds, however, credit assets become less “safe” and less liquid. Ensuring the government does not

10. RICKS, *supra* note 1, at 153.

11. There are different ways of explaining banks’ “multiplier” effect on changes to the money supply, and Ricks does a good job of surveying them. *Id.* at 58–59. One standard explanation goes something like this: when the government buys an asset from Al for 100 newly created dollars, the money supply has increased by \$100. Imagine Al deposits this with Bank X. Bank X lends \$90 of this to Bob, who uses it to buy a house from Charlotte. Charlotte deposits the \$90 in her bank. We started with \$100, but now Al has \$100 and Charlotte has \$90: the money supply has increased by a further \$90 without any further action by the government. This can continue as an iterative process, constrained only by bank’s reserve requirements.

12. Ricks reminds the reader that as recently as the turn of the millennium, officials at the U.S. central bank, the Federal Reserve (the Fed), experienced significant anxiety because the federal government was paying down its debt, creating the risk that the stock of outstanding Treasuries would be insufficient for the Fed to conduct its monetary operations. *Id.* at 157–58. This occurred *despite* the fact that the Fed was *not* trying to conduct monetary policy on its own—banks were amplifying the Fed’s monetary operations, meaning that the Fed needed a significantly smaller number of bonds to conduct its policy than it would have in the absence of private banks.

lose significant amounts of money in its monetary operations, then, will require it to do fundamental credit analysis. But it is unlikely the government has a comparative advantage in this area. And here we come to the crux of Ricks's thought experiment: it may make more sense for the government to outsource part of its monetary function—the part involving the purchase of credit assets other than government bonds—to licensed issuers of money claims, who, if they do a good job in choosing which assets to “buy” (or, equivalently, what loans to make),¹³ get to keep a cut of the profits. This largely describes the system of chartered banks in the United States. Of course, the licensed money issuers in the thought experiment would be issuing *sovereign* money in a joint venture with the government, meaning that the government guarantees against the risk that the value of the money issued by these firms will fall in nominal terms. But in this, too, the experiment looks a lot like our current system: deposit insurance makes most bank deposits “sovereign” money for all intents and purposes.

There is, however, one big difference and one yawning chasm separating our world from this thought experiment. The big difference is that in the experiment, all bank deposits would count as sovereign money; in our world, this applies strictly only to *insured* deposits, which are capped at \$250,000 per account.¹⁴ The chasm is that in Ricks's system, *only* licensed banks could create money; in our system, nonbank firms do so, as well. Though nonbanks are formally prohibited from issuing deposits, they can issue the *functional equivalent* of deposits, effectively creating *private* money—that is, money that the government does not guarantee and that can suffer losses in nominal terms. This is the shadow banking system. Shadow banking, as Ricks understands the term, is not just about unregulated financial intermediation;¹⁵ it is

13. It may seem odd to those unused to pondering the economic theory of banks to read that banks create money by buying assets. But when a bank lends, say, \$500,000 for a mortgage, the loan, which is a liability for the borrower, represents an asset for the bank: the bank has a contractual right to future payment streams from the borrower. One can view the loan, then, as equivalent to the bank spending \$500,000 to buy an asset: the right to future cashflows. (This is clearer if one thinks of the bond market—one buys a bond from an issuer that involves a contractual right to future payment streams.) In “buying” this asset, the bank simply credits the borrower's account with \$500,000: new money has entered the economy. (The money will quickly be transferred to the seller's account, of course, but it is still money.) As noted in *supra* note 11, banks' ability to create money in this way is finite: it is limited primarily by reserve requirements (which are set by the Federal Reserve).

14. 12 U.S.C. § 1821(a)(1)(E) (2012).

15. See RICKS, *supra* note 1, at ix (explaining that “‘shadow banking’ . . . has come to mean different things to different people. Indeed, it has become so vague as to render it almost meaningless. Sometimes it is used as a synonym for nonbank credit intermediation; other times it is an all-purpose reference to unregulated or lightly regulated parts of the financial system. To us, though, the term meant something very different, and quite specific. When we talked about

financial intermediation by nonbanks that is funded by deposit equivalents, or “shadow money.”¹⁶

These two differences in monetary design—limits on deposit insurance and money creation outside licensed banks—mean that our system, in contrast to the system the thought experiment produced, is unstable. In the thought experiment, the risk of loss on *all* money is removed by government guarantees, thereby eliminating the risk of runs or panics. The path from our unstable system to the stable system of the thought experiment is short and straight: it can be achieved by eliminating shadow banking and making all bank deposits “sovereign”—i.e., insuring them.¹⁷

II. DEFINING CONCEPTS: “MONEY” AND “FINANCIAL STABILITY”

A. Money as Money Claim

A vital step in grasping Ricks’s argument is to understand his usage of the term “money.” What makes Ricks’s usage potentially counterintuitive, though no less compelling or correct, is that he denies as necessary perhaps *the* primary attribute usually assigned to “money”—namely, that it serve as a medium of exchange.¹⁸ This is

shadow banking, we were referring to the financial sector’s use of vast amounts of *short-term debt* to fund portfolios of financial assets.”).

16. A classic example of shadow money is the repurchase agreement, or “repo,” in which one party posts a bond as collateral for a short-term loan. (Technically, one parties “sells” the bond and promises to repurchase it at a slightly higher price on a given date in the near term.) Repo loans are often overnight. If the traditional banking model involves a bank using deposits to fund a portfolio of mortgages, the shadow banking model involves a broker-dealer using repo to fund a portfolio of mortgage-backed securities. Repo loans are not demandable; rather, they mature (in the case of one-day repo) every day, but are rolled over until the funds are needed by the lender. In functional terms, this is virtually identical to deposits, which mature continuously, but are also rolled over until the depositor needs the funds to meet a payment obligation. Depositors’ claims on the bank constitute a type of money. Repo lenders’ claims on the borrower likewise constitute a type of money.

17. There is more to Ricks’s proposal than this—*see, e.g.*, RICKS, *supra* note 1, at 241—but these are the essential pillars. One thing to note is that his approach would eschew the focus on deposits and provide for government backing of all money claims. *See infra* Section II.A.

18. The classic functional definition of money is that it serves as: (i) a medium of exchange, (ii) a store of value, and (iii) a unit of account. *See, e.g.*, N. GREGORY MANKIW, *MACROECONOMICS*, ch. 4 (5th ed. 2002). Ricks does not deny that for some analyses, the medium-of-exchange attribute of money may be paramount, but it is clearly not so when our concern is financial stability. Furthermore, in Ricks’s usage, it is not enough for money to be a store of value—it must be a *stable* store of value. Comparing Ricks’s conception of money with the textbook definition, and either of these with new digital currencies such as Bitcoin, suggests that the term may be vulnerable to the same sort of critique that Tom Grey famously applied to “property.” *See* Thomas C. Grey, *The Disintegration of Property*, in *NOMOS XXII: PROPERTY* 69, 73 (Roland Pennock & John W. Chapman eds., 1980) (“It seems fair to conclude from a glance at the range of current usages that the specialists who design and manipulate the legal structures of the advanced capitalist

because assets that do not serve as media of exchange can nevertheless serve a similar instrumental purpose if they can be converted into the medium of exchange at par and at virtually no cost when one needs to engage in a transaction. Deposits without check-writing privileges are one example of this type of claim. No one would open such an account as a pure investment—one opens such an account in order to store one's money so it is available when one needs it.¹⁹

Assets that allow us to meet our expected near-term payment obligations, such as payroll for a business or rent for an individual, constitute what Ricks calls “money claims,”²⁰ and money claims make up our “transaction reserve.” It is not enough that an asset be liquid to be a money claim. It must also have a stable value in *nominal* terms.²¹ This means that it must have extremely low default risk *and* that it must have a short maturity, because long-term assets are subject to interest rate risk, which can affect their price even in the absence of default risk—a point to which I will return shortly.

Ricks's treatment of money may seem idiosyncratic, but he marshals overwhelming support for his view from legal rules,²² accounting standards,²³ and the practices of financial professionals,²⁴ as well as from prominent economists today²⁵ and economic colossi of bygone eras.²⁶ Understanding this notion of money as the assets in one's transaction reserve, or as safe, short-term debt claims, is essential to understanding the link between monetary policy and financial stability. The very features that imbue these claims with “moneyness”—their

economies could do without using the term ‘property’ at all.”). On this point, Ricks aptly cites Wittgenstein's concept of “family resemblances” in classifying terms. RICKS, *supra* note 1, at 49 (noting that “Ludwig Wittgenstein famously cautioned against categorizing phenomena in terms of ‘essential’ properties. The essentialist approach, he said, tends to obscure our view of reality, causing us to miss important connections. Better to classify things in terms of ‘family resemblances’ instead.”).

19. This does not, of course, mean that depositors are indifferent to interest, but the low yield on this type of asset makes it unattractive in the absence of its *instrumental* purpose. See RICKS, *supra* note 1, at 45 fig. 1.6.

20. The term “money claims” encompasses both deposits and shadow money.

21. Money claims must be stable in nominal terms because the *prices* of the goods and services money is used for are generally stable in nominal terms over short time horizons—“[t]his is just another way of saying . . . that prices are sticky in the short run.” RICKS, *supra* note 1, at 43 (internal quotation marks omitted).

22. *Id.* at 39.

23. *Id.* at 37–38.

24. *Id.* at 38–39.

25. *Id.* at 40 (citing Robert Lucas, Nancy Stokey, Paul Krugman, Gary Gorton, Jeremy Stein, Marvin Goodfriend, and John Cochrane).

26. See, e.g., *id.* at 30 (citing Milton Friedman and Anna Schwartz); *id.* at 40 (citing Henry Simons); *id.* at 47–48 (citing John Maynard Keynes).

short maturity and the holder's expectation of price stability—create the risk of en masse withdrawals and panics.

1. Reflection

I find Ricks's treatment of money compelling, but others have been less persuaded.²⁷ This fact illustrates, in my view, the particular difficulty in writing a book like this. Despite a conceptual clarity that I believe is unparalleled in literature on the recent crisis, as well as consistently limpid prose, *The Money Problem* is a challenging book. Ricks faces a fiendishly difficult problem in calibrating his argument to his audience, at least if the book receives anything like the attention it deserves. The difficulty evokes a description by the late mathematician William Thurston of the *social* challenge of proving theorems that cut across subdisciplines:

We prove things in a social context and address them to a certain audience. Parts of my proof I could communicate in two minutes to the topologists, but the analysts would need an hour lecture before they would begin to understand it. Similarly, there were some things that could be said in two minutes to the analysts that would take an hour before the topologists would begin to get it.²⁸

I do not mean to compare Ricks's work to that of a mathematician, but I believe the challenge with respect to audience, at least among legal academics and policymakers, is analogous. Most readers with some background in the crisis or economic theory will likely find parts of the book intuitively easy to grasp; other parts of the book will demand more sustained attention, and may even, on a few rare occasions, leave the reader wishing for more explanation. There is a delicate balance, however—any extra explanation may impose a cost on and detract from the experience of other readers. The problem has no perfect solution; it arises out of the breadth and subtlety of the book's arguments. I believe Ricks does a good job striking a balance, but the challenge creates certain unavoidable risks, which a brief example will help illustrate.

As noted, it is impossible to understand Ricks's arguments without understanding his concept of "money claim." I have heard and read some legal academics—drawing on the concept of safe assets held for transactional purposes and even citing Ricks's earlier work—claim that money demand can be met by long-term Treasury bonds.²⁹ Their

27. See *infra* note 29, and accompanying discussion.

28. William P. Thurston, *On Proof and Progress in Mathematics*, 30 BULL. AM. MATHEMATICAL SOC'Y 161, 175 (1994).

29. See, e.g., Adam J. Levitin, *Safe Banking*, 83 U. CHI. L. REV. (forthcoming 2016), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2532703.

rationale is that such bonds are “highly liquid at par.”³⁰ Ricks provides a compelling argument in pellucid prose—both in this and in his earlier work—for why this is not the case. Money claimants tend to have reasonably predictable payment obligations in *nominal* terms over a short time horizon.³¹ What they desire with respect to their money claims is first and foremost return *of* capital rather than return *on* capital—money claims are “precisely the resources they are *not* investing.”³² Consider a firm with some visibility into its near-term payment obligations; the firm wants to ensure it can meet these obligations but does not want to devote any more to this end than is necessary, since holding claims in a transaction reserve diverts resources from the firm’s central profit-generating activities. Money claimants are extraordinarily intolerant, therefore, of any haircuts; as I will discuss further below, at the height of the crisis, the threat of a loss of two or three pennies on the dollar at one money market fund was enough to trigger a panic that engulfed a multi-trillion-dollar corner of the shadow banking industry.³³ Money claims must be *price-protected*—their value must be extremely stable in nominal terms. One requirement for meeting this criterion is extremely low default risk—something easy to stipulate to with long-term Treasuries. The other requirement is that the asset must be short-term, because the value of long-term bonds can change as interest rates change. This is a less intuitive point for many readers, but a highly stylized example should help clarify it.

Start by imagining a perpetual bond, sold to the public for \$100 and promising \$5 interest per annum. This implies market interest rates of five percent. As long as the relevant market interest rate stays at five percent—and assuming away credit risk—the bondholder will be able to sell the bond for \$100. Now imagine interest rates jump to ten percent. This means that other investors can now secure the same income stream of \$5 per annum for just \$50. No one would pay more than \$50 for an equivalent cashflow. Thus, the original bond, which could be sold for \$100 yesterday, will only fetch \$50 today. The value of the bond has declined due to a change in market interest rates. This is true even if the bond has zero default risk and the secondary market for it is infinitely liquid.

30. *Id.* at 63.

31. Again, this is due to near-term price stickiness. *See supra* note 21.

32. RICKS, *supra* note 1, at 45. Money claimants must sacrifice yield in exchange for the instrumental value of the claim. *Id.*

33. *See infra* Part IV.

Of course, most debt claims are not perpetual. It turns out, however, that the longer the remaining maturity of the debt claim, the more a given jump in interest rates eats into the claim's value. (Equivalently, the sooner you can withdraw your principal and put it to work at the higher interest rates, the less you lose.) For example, suppose there are three debt claims, each worth \$100 at issuance. Claim 1 matures in 1 day, Claim 2 matures in ten years, and Claim 3 matures in thirty years. Interest rates are 2.5 percent when the loans are made.³⁴ (Unless noted otherwise, interest rates are always quoted on a per annum basis. Assume for simplicity's sake that the interest is paid on Claims 2 and 3 once a year.)³⁵ Immediately after the loans are made, interest rates jump one-half of one percentage point, to three percent. How much is each debt claim worth now? Rounding to a penny, Claim 1's value does not change. Claim 2, however, is now worth \$95.73, and Claim 3 is worth \$90.20.³⁶ These may not seem like significant investment losses, but the risk of such a fall in value disqualifies Claims 2 and 3 for status as *money* claims for most agents in the economy.³⁷

It is also worth noting that the short-term nature of an asset is much more likely to qualify it for a firm's transaction reserve than immediate salability does. Think in this respect of 30-day or 60-day commercial paper, a type of short-term, unsecured senior claim on a corporation. Many firms that buy commercial paper likely do not do so with a view to selling it when they need cash; rather, they buy it so that the instrument matures immediately before a known obligation comes due. This reliance on maturity rather than resale only works for near-term transactions; firms may have a precise sense of what their payroll will be in two months' time, but very little visibility into what it will be in a year, let alone in five or ten years.

The shortcoming of long-term bonds as money claims becomes even clearer if one considers that repo transactions³⁸ are often

34. For ease of exposition, I make the thoroughly unrealistic assumption that bonds of different maturities (and which are in other respects the same) pay the same interest rate.

35. Long-term Treasuries pay interest semiannually. It is also worth noting that while long-term Treasury bonds involve regular interest payments, short-term Treasury bills do not pay anything prior to maturity but are sold at a discount from their face value (i.e., the nominal amount the holder receives upon maturity).

36. The formula for determining the present value of a future income stream is:

$$\sum_{t=0}^N \frac{Rt}{(1+i)^t}$$

where N = to the number of periods, t = time of each cash flow, Rt = the net cash flow for each time t , and i = the discount rate (here, the prevailing market interest rate).

37. Again, the run on MMFs should make this apparent. See *infra* Part III.

38. See *supra* note 16.

collateralized by long-term Treasuries; such a transaction would be pointless from the *lender's* perspective if long-term Treasuries really had the same “moneyness” quality that the short-term debt claim does.³⁹ Why not just own the Treasury and earn the extra yield? Indeed, if long-term Treasuries really could function as money claims, it is hard to explain why repo lenders ran on Bear Stearns even when the loans were fully collateralized by long-term Treasuries.⁴⁰ From Ricks's perspective, this apparent mystery is easy to explain: lenders wanted money claims; long-term bonds, while providing important protection as collateral for money claimants, are nevertheless not money claims.⁴¹

To some this whole discussion may seem obvious; to others, arcane. Its points are, however, vitally important not only to Ricks's arguments, but also to the central problem of financial regulation today. The fact that it remains a point of contention for smart, knowledgeable readers of Ricks, despite the crystal clarity and thoroughgoing persuasiveness of his case, shows the challenge of this project.

B. Financial Stability and Panics

Just as it is important to understand what Ricks means when he talks about “money,” it is important to understand what he means by “financial stability.” He is not concerned with asset bubbles and crashes per se. He is concerned with *panics*, or widespread withdrawals of funding by money claimants. Panics are “a pathology [specific to] short-term debt.”⁴² To understand why panics are the focus of his concern, it is helpful to compare the crash of the dot-com bubble in 2000 with the crash of the housing market. Ben Bernanke has observed that total losses on stocks in the wake of the dot-com crash were at least as large as the paper losses on *all* residential real estate from the peak of the bubble to its bottom.⁴³ The dot-com crash led to a very mild recession and no disruption of financial markets. Why were the effects of the housing crash so much worse? Bernanke's answer is, in essence, that the housing crash led to a shadow banking panic, while the dot-com

39. Long-term Treasuries can, of course, satisfy a generic demand for “safe” assets, a demand which can become pronounced when market turmoil triggers a “flight to safety.” As the structure of repo transactions makes clear, however, this type of “flight to safety” is distinct from the demand for *money* claims.

40. RICKS, *supra* note 1, at 214.

41. *Id.*

42. *Id.* at 142.

43. Ben S. Bernanke, Chairman, Bd. of Governors of the Fed. Reserve Sys., Some Reflections on the Crisis and the Policy Response (Apr. 13, 2012), <http://www.federalreserve.gov/newsevents/speech/bernanke20120413a.htm> [<https://perma.cc/8CKG-AAE8>].

crash did not.⁴⁴ Losses in 2007–2009 were concentrated among financial intermediaries that were highly leveraged with short-term debt—i.e., shadow banks—while losses in 2000–2001 were not.⁴⁵

The ultimate object of our concern, of course, should be the real economy. If panics are the problem, it is important to specify a *mechanism* by which panics affect the real economy. Ricks's answer is that a panic leads to a contraction in the availability of lending to creditworthy consumers and job-creating businesses. He terms this contraction the “panic crunch.”⁴⁶ The panic crunch starts, Ricks explains, when a (shadow) bank trying to meet elevated redemption requests runs through its liquid reserves. It must then sell assets to meet further redemption requests. During a crisis, however, buyers are likely to be sparse.⁴⁷ The need to sell when there are few buyers depresses the sale price. This can affect other entities holding identical or similar assets, forcing them to mark their assets down, weakening their balance sheets and the assets' value as collateral. Anil Kashyap and his co-authors refer to this as a “fire sale externality.”⁴⁸ The affected entities may then engage in further liquidations as they try to strengthen their capital or unwind collateralized positions, further depressing prices and feeding a vicious cycle of mark-downs and liquidations. As asset prices fall, yields rise—a \$90 security promising to pay \$100 in a year's time has a higher implied interest rate, or yield, than a \$95 security promising to pay \$100 in a year's time. A bond's yield represents the issuer's cost of funding—that is, how much it has to promise to pay in the future in order to receive a specific sum of money today. The higher yields on existing bonds create a higher “hurdle” rate for *new* financing, producing a credit crunch for new projects by businesses and individuals. Because economic activity and growth is heavily reliant on debt financing, the crunch stunts economic

44. *Id.*

45. *Id.*

46. RICKS, *supra* note 1, at 111. While Ricks's analysis draws on and is consistent with that of other commentators, his synthesis of the theoretical arguments and empirical evidence represents, I believe, a real contribution to our understanding of the effect of crises on the financial system and real economy.

47. Most potential buyers are either funded by or are themselves (shadow) banks; but the (shadow) banks will likely be hoarding cash in a crisis to meet their own anticipated needs.

48. See Anil Kashyap et al., *Rethinking Capital Regulation*, in FED. RESERVE BANK OF KAN. CITY, MAINTAINING STABILITY IN A CHANGING FINANCIAL SYSTEM (2008), <https://www.kansascityfed.org/~media/files/publicat/sympos/2008/kashyaprajanstein031209.pdf?la=en> [https://perma.cc/8Q6X-D6L2].

growth. Ricks reviews a good deal of empirical evidence that is consistent with his theoretical argument.⁴⁹

1. Critique

The panic crunch story is persuasive, but it nonetheless leads to a critique of the book. One way of viewing *The Money Problem* is as a series of rich, interlocking arguments that feed into an overarching narrative. Many of the arguments Ricks advances, in my view, he proves beyond a reasonable doubt. Others he carries with clear and convincing evidence, and a few he carries by preponderance of the evidence. There is a key argument in this section of the book, however, where I believe Ricks's success may depend on where the burden of proof lies. This involves competing answers to the question of why the economy remained in a funk for so long *after* the panic of 2007–2008 had ended.

In other words, even if it is clear that a panic creates a negative demand shock that throws the economy off its previous growth path, why doesn't "catch-up" growth automatically pull the economy out of recession and restore it to its previous path once financial conditions stabilize? Ricks's own answer—drawing, *inter alia*, on the work of economic giants such as John Maynard Keynes and James Tobin—is that the assumption of catch-up growth is misplaced in this context: there is no reason to believe that economies have any natural or automatic tendency to bounce back from a negative shock at all. Tobin, Ricks tells us,

conceives of the problem as a kind of economywide coordination failure. The problem he describes is circular: output is constrained by demand for goods and services; demand for goods and services is constrained by the level of employment; and the level of employment is constrained by output.⁵⁰

In this view, which Ricks adopts, the negative effects of a severe financial crisis should be *expected* to persist long after the crisis is over.

49. One of the book's nicest arguments compares the "panic crunch" story to other explanations for rising bond yields during the crisis—such as heightened perceptions of default risk—in light of the fact that bond spreads and the price of credit default swaps (CDS) written on the same bond, which usually track each other closely, diverged significantly. During the crisis, CDS overwhelmingly implied lower probabilities of default, which would make no sense if the problem were heightened perceptions of risk. It *does* make sense, however, if the problem is access to funding, as the panic crunch story would have it: buying bonds requires an upfront payment of cash; selling CDS protection may require the posting of some initial margin, but it is far less than the value of the bonds being insured. See RICKS, *supra* note 1, at 118–20.

50. *Id.* at 140.

To avoid the recession, one must avoid the panic. Importantly, Tobin's coordination story "isn't about excessive debt loads."⁵¹

Perhaps the most prominent cluster of theories put forward to explain the economy's failure to bounce back after 2008 *do*, however, view excessive debt loads as central to the issue.⁵² In doing so, these theories tend to deemphasize the importance of the financial panic in explaining the persistence of the recession, and thus carry very different policy implications from those Ricks draws out of the panic crunch story. One of the most influential versions of this type of debt-focused account comes from Atif Mian and Amir Sufi, who, in a series of academic papers and a book, *House of Debt*, present what they call the "levered losses framework" for understanding this demand shortfall.⁵³ An efficient way to provide a sense of the gist of their account—without pretending to do justice to their body of research and theoretical framework—is to return to Bernanke's comparison of the aftermath of the dot-com and housing bubbles. As noted, Bernanke believes the far more damaging fallout from the housing crash was due to the fact that losses fell especially heavily on shadow banks—i.e., financial institutions that were highly levered with short-term debt.⁵⁴ The dot-com bubble did not implicate banks or shadow banks, and thus created no panic crunch. This is consistent with Ricks's framework.

Mian and Sufi, however, make a strong case that the more important distinction between the two crashes is that losses from the housing crash disproportionately fell on those with a much higher marginal propensity to consume—namely lower-income, highly leveraged homeowners.⁵⁵ Some might question why this *distributional* point would have a differential impact on *aggregate* demand and output—in other words, if aggregate losses from the dot-com crash were as bad as aggregate losses from the housing crash, shouldn't the effect on aggregate demand be equal in the two cases?

Mian and Sufi convincingly squash this argument. They present a compelling case that: (a) losers in the housing crash were disproportionately less wealthy and had higher levels of debt than losers in the dot-com crash, and (b) this should indeed be expected to have a differential impact on aggregate demand.⁵⁶ First, as asset prices fall, those with higher levels of debt have a harder time getting credit

51. *Id.*

52. Ricks provides a very good overview of these theories in Chapter 4. *Id.* at 130–38.

53. *Id.* at 13–38; ATIF MIAN & AMIR SUFI, *HOUSE OF DEBT* (2014).

54. *See supra* notes 43–45 and accompanying text.

55. MIAN & SUFI, *supra* note 53, at 50–52.

56. *Id.* at 41–44.

to fund new expenditures.⁵⁷ This was a much greater problem during the housing crash than the dot-com crash. Second, those with less wealth are much likelier to cut back on spending after losses in order to rebuild their wealth for retirement and other future needs.⁵⁸ To put it somewhat simplistically, dot.com losses hit wealthy “savers” whereas housing losses hit non-wealthy “borrowers,” and the former can absorb losses without reducing their current consumption much more easily than the latter. Thus, the decline in spending was greater than it would have been if losses had been more evenly distributed throughout the population, or concentrated among the wealthier. As spending declines, businesses experience falling sales and have to lay off workers, which causes further declines in spending, hurting businesses even more, and so on.

Ricks, in defending the panic-crunch story that Mian and Sufi see as peripheral, pokes some holes in their account—for example, while Mian and Sufi emphasize that the recession began before the height of the panic in September 2008, Ricks reminds us that the first wave of panics hit in 2007, before the economy went into recession.⁵⁹ Ricks also argues that the credit crunch lasted beyond when Mian and Sufi claim that it ended, and while Mian and Sufi cite survey data that show access to credit was not as big a problem as declining sales were for small businesses during and after the crisis, Ricks points to other survey data highlighting access to credit as a key problem for small businesses.⁶⁰ And Ricks provides an alternative interpretation for a key part of Mian and Sufi’s empirical case: the fact that spending fell more and job losses were heavier in zip codes where home prices fell further. Ricks observes that this is *also* consistent with the panic crunch story:

A sharp contraction in the supply of financing should be expected to have a disproportionate impact on spending (and on jobs catering to local demand) in zip codes where consumers and local businesses have been relying more heavily on debt to finance expenditures. Mian and Sufi’s findings therefore don’t tell us what would have happened without the panic crunch.⁶¹

It is also worth noting that one of the most important claims Mian and Sufi make in *House of Debt*—that under certain statistical assumptions, their levered-losses framework explains sixty-five percent of U.S. job

57. *Id.* at 51.

58. *Id.*

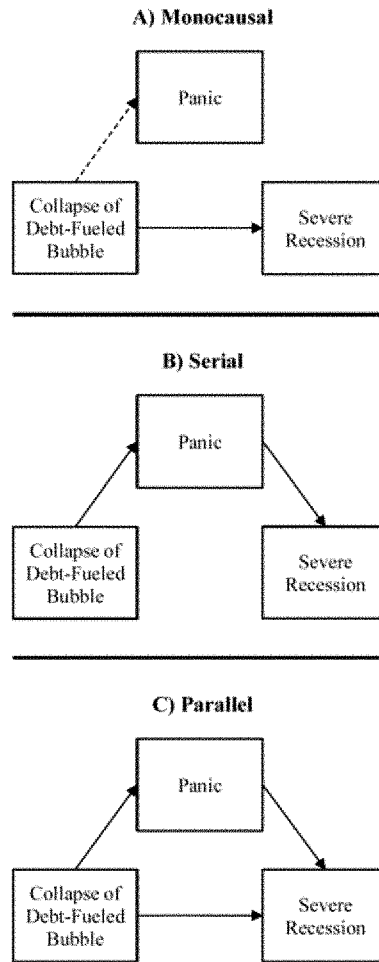
59. RICKS, *supra* note 1, at 136. The panics of 2007 involved bank-sponsored off-balance sheet “structured investment vehicles.” See, e.g., Gary Gorton, *The Panic of 2007* (National Bureau of Econ. Research, Working Paper No. 14358, 2008), <http://www.nber.org/papers/w14358.pdf> [<https://perma.cc/RB76-YBGS>].

60. RICKS, *supra* note 1, at 136–37.

61. *Id.* at 137.

losses in a large sample from March 2007 through March 2009—was dropped from the final published version of the academic paper on which it was based.⁶² In any event, I am not qualified to adjudicate the conflicting interpretations of data, but my general sense is that both Ricks and Mian and Sufi have intuitively powerful conceptual frameworks that are consistent with much of the empirical evidence. While Ricks has vindicated the importance of the financing crunch and created questions about Mian and Sufi's account, he has not provided the type of knock-down argument against them that leavens other sections of the book. Though the importance of the panic crunch seems clear, the importance of elevated debt levels as a contributor to the recession remains a key point of contention. Ricks provides an extremely useful diagram to aid in thinking through these issues, reproduced below as Figure 1.

62. For the initial 65 percent estimate, see MIAN & SUFI, *supra* note 53, at 66. This is consistent with the original working paper presenting their research on this issue. See Atif Mian & Amir Sufi, *What Explains High Unemployment? The Aggregate Demand Channel* (working paper, July 2012), <https://www.frbatlanta.org/-/media/Documents/news/conferences/2012/employment-great-recession/Mian-Sufi.pdf> (arguing that their “estimates suggest that the decline in aggregate demand driven by household balance sheet shocks accounts for ... 65% of the lost jobs in our data”). In a subsequent version of the paper, the estimate fell to 55 percent. See Atif Mian & Amir Sufi, *What Explains the 2007-2009 Drop in Employment?* (working paper, Feb. 2014), <http://www.umass.edu/preferen/You%20Must%20Read%20This/Mian%20Sufi%20NBER%202014.pdf> (stating that their framework can account for “55% of the actual decline in total employment”). The final version of the paper does not include any estimate of the percentage decline in employment arising from what they call the “housing net worth channel” (a phrase that captures the specific source of levered losses that were a problem in the recent crisis). Atif Mian & Amir Sufi, *What Explains the 2007-2009 Drop in Employment?*, 82 *ECONOMETRICA* 2197 (Nov. 2014). This is not, of course, evidence that Mian & Sufi's explanation is in any way wrong, but it does imply that they themselves have become less confident in the strength of their statistical case.

Figure 1: Alternative Causal Scenarios⁶³

I think it is fair to say that while Mian and Sufi would admit that the panic exacerbated the recession, they would also view panel A as fairly close to the truth. Ricks, on the other hand, while not denying that excessive debt loads could worsen a recession, sees panel B as fairly close to the truth. For Ricks, if we break the link between the collapse of the debt-fueled bubbles and panics—which his proposal would accomplish—we can also avoid the severe recession. Mian and Sufi, on the other hand, believe that excessive debt loads in the wake of an asset-

63. RICKS, *supra* note 1, at 105.

bubble collapse can create a severe recession even in the absence of a panic.

As suggested above, the different interpretations yield starkly different policy prescriptions. Happily, the prescriptions are not mutually exclusive. I remain thoroughly convinced of the wisdom of Ricks's reform ideas, which are about panic-proofing. I am not sure, however, that I would join Ricks in the view that if we panic-proof the system, "we should probably *not* [try to limit leverage among non-banks]—at least not in the first instance."⁶⁴ I believe the Fed's recent steps to tighten margin rules⁶⁵—certainly a good idea in the absence of Ricks's reforms—could be a good idea even with them. In any event, Ricks's opposition to leverage limits for non-banks seems inspired more by a desire to prioritize reform efforts than by a fundamental hostility to the notion, and we agree that panic-proofing should be our first (and second, and third) priority.

III. PANICS, INSURANCE, AND RISK CONSTRAINTS

In this Section, I aim to show how Ricks helps establish the superiority of a bank regulatory system combining insurance and risk constraints over a system that relies solely on (more onerous) risk constraints. Ricks's proposed system, as we have seen, would include unlimited insurance for money claims issued by licensed banks. This gives rise to concerns about moral hazard and potential resource misallocation.⁶⁶ Regulations constraining bank risk-taking thus remain vital—both in Ricks's reformed system and in our system, with its more limited insurance. Once we have risk constraints, however, an obvious question is why we don't just make them strong enough to address panic risk without creating a safety net. Ricks's position, which he argues trenchantly, is that it is extremely unlikely that any system of risk constraints could adequately address the risk of panic while simultaneously providing adequate flexibility for monetary purposes.⁶⁷

The problem is illuminated by Ricks's theory of banks and bank panics. Ricks's novel model leverages an ancient insight about bank

64. *Id.* at 261.

65. See, e.g., Ryan Tracy, *Fed Eyes Margin Rules to Bolster Oversight*, WALL ST. J. (Jan. 10, 2016), <http://www.wsj.com/articles/fed-eyes-margin-rules-to-bolster-oversight-1452471174> [<https://perma.cc/3J6W-83RS>]

66. The idea is that because bank shareholders and executives get to keep upside gains but have a truncated downside due to limited liability, and depositors have no incentive to expend resources "disciplining" them since they are insured, there will be an incentive for banks to take too much risk.

67. RICKS, *supra* note 1, at ch. 6.

runs: though almost always triggered by fundamental developments, they can be self-fulfilling prophecies that are not necessarily driven by any fundamental problems at particular banks.⁶⁸ His model of the bank is a version of the game theory classic, the “Stag Hunt.”⁶⁹ Unlike a prisoners’ dilemma, which has a single equilibrium, a stag hunt has two equilibria: a good one and a bad one. From the perspective of a given individual depositor, if no one else is “running,” there is no good reason for her to run;⁷⁰ we are in a good equilibrium. If others *are* running, the depositor *should* run as well, to minimize the risk of loss or delay on her account. What causes a shift from one equilibrium to the other? Ricks persuasively argues that while fundamentals matter, there is no *mechanical* relationship between fundamentals and a shift in the equilibrium.⁷¹ He appeals to the notion of a “focal point,” made famous by the work of Thomas Schelling, as the best answer to the question of what causes a shift in equilibrium.⁷² This may frustrate some economists who prefer single-equilibrium models,⁷³ but in my view it has the advantage of capturing the essential, stability-relevant aspects of reality when it comes to (shadow) banks.

Indeed, this account provides the best explanation, I believe, for what was perhaps the most terrifying moment of the crisis in 2008, involving a panic in the money market fund (MMF) industry. MMFs are paradigmatic issuers of shadow money claims; their “shares” are supposed to maintain a fixed value of \$1.00, and are seen by their holders as close substitutes for bank deposits. After Lehman Brothers filed for bankruptcy on September 15, 2008, Reserve Primary, a large MMF that had significant exposure to Lehman Brothers commercial

68. *Id.* at 62.

69. *Id.* at 67–68.

70. If there were, the depositor would never have deposited her money in the bank in the first place.

71. RICKS, *supra* note 1, at 80.

72. *Id.* at 69–70. (“Schelling suggested that a choice among Nash equilibria may be determined by a ‘clue’ or ‘focal point’ that affects how players expect other players to behave. The prominence of any such focal point can’t be derived from reason; it ‘may depend on imagination more than on logic.’ . . . The takeaway for our bank game is that the shift from one equilibrium to the other is inherently a psychological matter. We might very well expect this shift to be related to some change in the fundamental condition of the bank—but maybe not. For instance, a commonly observed run at another bank may be a natural focal point. The expectation of a run will start a run”)

73. See, e.g., GARY GORTON, MISUNDERSTANDING FINANCIAL CRISES 206 (2012). One of Gorton’s frustrations with multiple equilibria models is that “[n]o policy recommendations flow from such a model,” but I believe the policy implication here is clear: insure money claims. *Id.*

paper, experienced a run.⁷⁴ This, in turn, triggered a run on the entire institutional prime MMF industry.⁷⁵ It is hard to overstate how damaging this would have been if the Treasury Department had not halted it with a blanket guarantee of the entire industry.⁷⁶ Treasury wound up collecting \$1 billion in premiums for the guarantees but did not have to pay out a single dollar on the program.⁷⁷ Thus, with the exception of Reserve Primary (which wound up paying out more than 99 cents on the dollar, and was not eligible for the guarantee program), there were no losses on MMFs. The run, in other words, was untethered to actual solvency problems at the other MMFs; Reserve Primary's buck-breaking served as a Schelling focal point⁷⁸ that shifted the industry from a good to a bad equilibrium. Runs represent coordination failures where money claimants' primary focus is horizontal—looking to what other money claimants are doing—instead of vertical—looking to the issuer's balance sheet.⁷⁹ Thus, solving the problem of runs *solely* through risk constraints on the issuer is bound to be difficult.

Take, for example, capital requirements—that is, requirements that the value of a bank's assets exceed its liabilities by some prescribed percentage. Some influential voices in the wake of the crisis suggest that heightened capital requirements for banks *and shadow banks* are all that's needed to stabilize the financial system.⁸⁰ The obvious question, then, is how high capital requirements would have to be to achieve stability in the absence of safety nets. It's worth noting that historically, capital levels at banks in the era prior to deposit insurance were far higher than they are now—sometimes even higher than the most prominent critics suggest for our current system.⁸¹ This did not however, prevent panics—on the contrary, they were a regular occurrence, with terrible consequences for the real economy.⁸²

Consider, too, that one way of interpreting the absence of payouts on the Treasury's MMF guarantee program is that, despite razor-thin capital buffers, MMFs *were, in fact, adequately capitalized*.

74. See FIN. CRISIS INQUIRY COMM'N, THE FINANCIAL CRISIS INQUIRY REPORT 353–56, http://fcic-static.law.stanford.edu/cdn_media/fcic-reports/fcic_final_report_chapter20.pdf [<https://perma.cc/XE4V-ZPAN>].

75. *Id.*

76. *Id.*

77. HANK PAULSON, ON THE BRINK 263 (2010).

78. See *supra* note 72.

79. RICKS, *supra* note 1, at 213.

80. See ANAT ADMATI & MARTIN HELLWIG, THE BANKERS' NEW CLOTHES, *passim* (2013).

81. *Id.* at 30–31.

82. See, e.g., GORTON, *supra* note 73, at 20 (citing 13 panics that occurred in the United States during the 19th century).

In the absence of a safety net, this fact was nevertheless not enough to prevent a coordination failure, panic, and near economic catastrophe. At some point, sufficiently strict capital requirements *would* probably be enough on their own to prevent these coordination failures, but it would likely take us into the zone of “100-percent reserve banking,” where private banks serve as “money warehouses,” storing but not creating money, and no financial intermediary is allowed to issue money claims. The Fed would then be carrying the entire onus for money creation with no help from the private sector, and, as we saw in the thought experiment, it would either be unable to find enough eligible assets to carry out its objectives or would have to engage in fundamental credit analysis itself. (In addition to the comparative disadvantage of bureaucrats in implementing this type of activity, it would also make capital allocation much more vulnerable to the pressures of political cronyism.) In sum, risk constraints are important as a way to align private incentives with the public interest, but they are unlikely *on their own* to be consistent with both sufficiently flexible monetary operations *and* panic-proofing the system.

IV. PUTTING TEETH INTO ENFORCEMENT OF THE “FIRST LAW OF BANKING”

In this Section I preemptively address potential objections that Ricks’s policy prescriptions are too radical or too difficult to implement. In our current system, only banks are allowed to issue deposits; Ricks refers to this as the “first law of banking.”⁸³ Shadow banks comply with the letter but not the spirit of the law. The elimination of shadow banks requires the *functional* enforcement of the first law of banking. This is likely to strike some readers as the most difficult part of the plan to implement—won’t devilishly clever financiers try to evade the rule? Ricks, a former professional arbitrageur, concedes the point but argues that arbitrage presents no greater difficulty in this case than it does in a host of cases where the wisdom and feasibility of regulation is widely accepted. “Money” would have to be defined functionally, but this poses no greater definitional challenge than one finds in other areas of financial regulation—“security” must be defined for securities regulation; “investment company” for regulation of investment companies; and “proprietary trading” for implementation of the Volcker Rule.⁸⁴ Ricks cites economist John Cochrane’s assessment that

83. RICKS, *supra* note 1, at 5.

84. *Id.* at 234.

“‘detecting run-prone financing . . . is an order of magnitude easier’ than current forms of financial regulation”⁸⁵

Ricks includes a draft of a statutory provision for the prohibition of “unauthorized banking,” which strikes me as quite plausible for effecting the functional enforcement of the first law of banking.⁸⁶ The most salient objection is likely how to address the issuance of dollar-denominated deposits by banks outside our jurisdiction—this is the vast “Eurodollar” market. Ricks concedes that this particular problem will likely require a multilateral treaty—no thornier in principle, however, than the capital accords that have been struck over the past few decades.⁸⁷ Alternatively, and less ideally, the United States could deny dollar clearing services to banks that issue Eurodollars. Numerous other objections may occur to different readers, and I will not try to deal with them all in this review, but those that did occur to me were dealt with deftly by Ricks.⁸⁸ I will cite just one here. Ricks’s definition of “money claim” includes commercial paper—short-term, unsecured debt. There is a myth that commercial paper is the lifeblood of many nonfinancial U.S. corporations. It turns out, however, that nonfinancial firms account for a trivial percentage of the commercial paper market.⁸⁹ (This is not something I have seen articulated, let alone emphasized, outside Ricks’s work.) For those few industrial firms that do issue it, life would get a tad more expensive under the reformed system, but it is very unlikely there would be any wide-scale disruption to corporate finance.

If Ricks succeeds in overcoming defeatist objections about the feasibility of his proposed reforms, as I believe he does, the differential regulatory treatment of banks and shadow banks becomes difficult to justify. Shadow money claims serve the same function and create the same risks as bank deposits; why, then, shouldn’t they be regulated in the same way? If forbidding nonbanks from issuing large quantities of short-term debt seems radical or draconian, it is unclear why forbidding nonbanks from issuing *deposits* is not also radical or draconian.

It is worth noting as well that capitalism has thrived in the past without shadow money. Indeed, one way of understanding the long, panic-free era the U.S. financial system enjoyed from the Great Depression until 2007–2008 is that it arose from a system of monetary

85. *Id.* at 236.

86. *Id.* at 243–45.

87. *Id.* at 237–40.

88. Immediately after the text of the proposed statute, Ricks explains how it would affect puttable bonds, money market funds, commercial paper, prime brokerage, securities lending, and derivatives. *Id.* at 245–47.

89. *Id.* at 36.

design that came reasonably close to matching Ricks's reformed system: insured deposits constituted the majority of money claims, and shadow money issuance was largely dormant.⁹⁰ Now that shadow money plays an outsize role in our economy, the case for the functional enforcement of the first law of banking is compelling. Ricks is persuasive that such enforcement is both feasible and desirable.

CONCLUSION

It is common for positive reviews to claim that a book is a must-read for those interested in the book's subject matter. I would amend the trope in this case: *The Money Problem* demands a *close, careful* reading by *serious* students of the crisis and financial reform. The book richly repays the investment of such a close reading. No other work on the recent crisis, in my view, can match the dividend *The Money Problem* yields in enlightening the reader and promoting a more stable financial system.

90. Shadow money is hardly a new phenomenon, *id.* at 230–37. It seems to have gone into abeyance for several decades in the middle of the twentieth century, however, before it gained a toehold with the establishment of money market mutual funds in the 1970s and then metastasized over the past couple decades. *See id.* at 35, 233.

